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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/774,387	02/10/2004	Terunori Kondou	040356-0504	1128

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EXAMINER

GREENE, JASON M

ART UNIT	PAPER NUMBER
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1724

DATE MAILED: 03/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/774,387

Applicant(s)

KONDOU ET AL.

Examiner

Jason M. Greene

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☒ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-11 is/are allowed.
- 6) ☐ Claim(s) ____ is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>2/10/04; 6/27/05</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claims

2. Claim 7 recites the phrase "where G_1 : the exhaust gas volumetric flow rate" in line 5. However, the equation recited in the claim at line 4 does not include a G_1 term. For examination purposes, the Examiner has assumed the term " G_1 " in line 5 was intended to read as " Q_1 ". If this assumption is correct, the Examiner suggests Applicants amend the claim accordingly to correct an apparent typographical error.

Allowable Subject Matter

3. Claims 1-11 are allowed.
4. The following is a statement of reasons for the indication of allowable subject matter:

With regard to claims 1-8 and 11, Plote et al. (US 6,945,037 B2) discloses an exhaust gas purification device (110) having a filter (114) which traps exhaust particulate from an engine (100) comprising a detection device (120) which detects a differential pressure between the front and rear of the filter based on an exhaust gas pressure at an outlet and inlet of the filter, and a controller (130) functioning to determine an operating state of the engine (rotational speed N), calculate an exhaust gas volumetric flow (V) based on the inlet pressure (P_v), and calculate an amount (BI) of particulate accumulated in the filter based on the exhaust gas volumetric flow rate in Fig. 1 and col. 3, line 28 to col. 7, line 29.

German Patent Application DE 199 33 988 A1 discloses an exhaust gas purification device having a filter (10) which traps exhaust particulate from an engine (1) comprising a detection device (12) which detects a differential pressure between the front and rear of the filter based on an exhaust gas pressure at an outlet and inlet of the filter, a detecting device which detects an air intake quantity (M_{air}) and a fuel quantity (M_c), and a controller functioning to determine an operating state of the engine (rotational speed N) and calculate an amount (c) of particulate accumulated in the filter based on the engine operating condition, the inlet pressure and a volumetric flow rate ($M_{air} + M_c$) in Fig. 1 and lines 1-10 of the English language abstract.

Pfister et al. (US 5,511,413) discloses an exhaust gas purification device (11) having a filter (10) which traps exhaust particulate from an engine (12) comprising a detection device (24) which detects a differential pressure between the front and rear of the filter based on an exhaust gas pressure at an outlet (26) and inlet (25, Ppre-filter) of

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the filter, and a controller (29) functioning to determine an operating state of the engine (rotational speed N), calculate an exhaust gas volumetric flow (v) based on the operating state of the engine (N), and calculate an amount (IK) of particulate accumulated in the filter based on the engine operating condition, the inlet pressure ($P_{pre-filter}$), and the volumetric flow rate (v) in Figs. 1-6 and col. 5, line 25 to col. 8, line 28.

With regard to claims 1-8, the prior art made of record does not teach or fairly suggest the exhaust gas purification device of claim 1 comprising a controller functioning to calculate an exhaust gas pressure at an outlet of the filter based on the operating condition of the engine, calculate an exhaust gas pressure at an inlet of the filter based on the differential pressure and the outlet pressure, calculate an exhaust gas volumetric flow rate based on the inlet pressure, and calculate an amount of particulate accumulated in the filter based on the exhaust gas volumetric flow rate.

With regard to claim 11, the prior art made of record does not teach or fairly suggest the exhaust gas purification device of claim 11 comprising means for calculating an exhaust gas pressure at an outlet of the filter based on the operating condition of the engine, means for calculating an exhaust gas pressure at an inlet of the filter based on the differential pressure and the outlet pressure, means for calculating an exhaust gas volumetric flow rate based on the inlet pressure, and means for calculating an amount of particulate accumulated in the filter based on the exhaust gas volumetric flow rate.

With regard to claims 9 and 10, Plote et al. (US 6,945,037 B2) discloses a method for determining an amount of particulate accumulated in a filter (114) which traps exhaust particulate from an engine comprising determining an operating state of the engine (rotational speed N), determining a differential pressure (using sensor 120) between the front and rear of the filter based on an exhaust gas pressure at an outlet and inlet of the filter, calculating an exhaust gas volumetric flow (V) based on the inlet pressure (P_v), and calculating an amount (BI) of particulate accumulated in the filter based on the exhaust gas volumetric flow rate in Fig. 1 and col. 3, line 28 to col. 7, line 29.

German Patent Application DE 199 33 988 A1 discloses a method for determining an amount of particulate accumulated in a filter (10) which traps exhaust particulate from an engine comprising determining an operating state of the engine (rotational speed N), determining a differential pressure (using sensor 12) between the front and rear of the filter based on an exhaust gas pressure at an outlet and inlet of the filter, detecting an air intake quantity (M_{air}) and a fuel quantity (M_c), and calculating an amount (c) of particulate accumulated in the filter based on the engine operating condition, the inlet pressure and a volumetric flow rate ($M_{air} + M_c$) in Fig. 1 and lines 1-10 of the English language abstract.

Pfister et al. (US 5,511,413) discloses a method for determining an amount of particulate accumulated in a filter (10) which traps exhaust particulate from an engine comprising determining an operating state of the engine (rotational speed N),

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determining a differential pressure between the front and rear of the filter based on an exhaust gas pressure at an outlet (26) and inlet (25, P_{pre-filter}) of the filter, calculating an exhaust gas volumetric flow (v) based on the operating state of the engine (N), and calculating an amount (IK) of particulate accumulated in the filter based on the engine operating condition, the inlet pressure (P_{pre-filter}), and the volumetric flow rate (v) in Figs. 1-6 and col. 5, line 25 to col. 8, line 28.

The prior art made of record does not teach or fairly suggest the method of claim 9 comprising calculating an exhaust gas pressure at an outlet of the filter based on the operating condition of the engine, calculating an exhaust gas pressure at an inlet of the filter based on the differential pressure and the outlet pressure, calculating an exhaust gas volumetric flow rate based on the inlet pressure, and calculating an amount of particulate accumulated in the filter based on the exhaust gas volumetric flow rate.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Boretto et al., Gillingham et al., Kuboshima et al., Yahata et al., Hamahata, Inoue et al., Kondo et al., Kondou et al., JP 7-145722, JP61-135917 and JP 60-47937 references disclose similar exhaust gas purification systems.

6. This application is in condition for allowance except for the above noted formal matters:.

Prosecution on the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

A shortened statutory period for reply to this action is set to expire **TWO MONTHS** from the mailing date of this letter.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M. Greene whose telephone number is (571) 272-1157. The examiner can normally be reached on Monday - Friday (9:00 AM to 5:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Jason M. Greene
Primary Examiner
Art Unit 1724


3/16/06

jmg
March 16, 2006